

REMARKS

This Amendment is responsive to the March 26, 2008 Office Action. Claims 19-36 stand rejected. Claim 36 has been amended.

Claim Rejections Under 35 U.S.C. §112, second paragraph

Claims 35 and 36 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Office Action asserts that the phrase “such that” in claim 35 and “such as” in claim 36 render the claims indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention.

With respect to claim 35, Applicants respectfully submit that the term “such that” is an acceptable functional limitation and does not render the claim indefinite. With respect to claim 36, Applicants have amended the claim to delete the phrase “such as a background”. Reconsideration and withdrawal of these rejections are respectfully requested.

Claim Rejections Under 35 U.S.C. §103(a)

Claims 19, 20, 24, 25, and 27 stand rejected under 35 U.S.C. § 103(a) as being obvious over United States Patent No. 5,691,811 to Kihira. Claims 21-23, 26, and 28-36 stand rejected under 35 U.S.C. § 103(a) as being obvious over Kihira in view of United States Patent No. 5,963,328 to Yoshida. In view of the following comments, reconsideration of these rejections is respectfully requested.

The Kihira patent is generally directed to a method and apparatus for detecting defects in sheet glass where a light source casts light on a sheet of glass through a slit plate and a camera receives the light transmitted through the transparent sheet and produces an image for inspection of a defect. The slit plate has a plurality of alternate small light transmitting portions and shading portions arranged in a checkered pattern, where the light transmitting portions are 1 mm wide and the shading portions are 1 mm wide (column 4, lines 1-5; Figs. 2 and 6A-6C).

The Office Action concedes that the Kihira patent does not disclose a mesh pattern, but asserts that providing the mesh pattern would have been obvious to one skilled in the art over the checkered pattern of Kihira. In particular, the Office Action at page 3 asserts “that the checkered pattern of Kihira can be interpreted as a mesh pattern because of the sequence it displays and the checkerboard patterns shown are typical of mesh patterns which can look like webs or a repetitive pattern.” The checkered pattern of light in Kihira, however, is not a mesh of the same shape, but rather is a plurality of alternate small light transmitting portions and shading portions. Therefore, the alternate small light transmitting portions and shading portions in Kihira are not typical of mesh patterns and cannot be interpreted as a mesh pattern as asserted in the Office Action. Furthermore, claims 19 and 24 require each mesh to have an irradiation area smaller than a non-irradiation area in a plane normal to an optical axis. As noted above, in the checkered pattern of Kihira the light transmitting portions and the shading portions are both 1 mm wide and fail to teach or suggest this limitation (see column 4, lines 1-5). Accordingly, for at least the reasons discussed above, the Kihira patent fails to render independent claims 19 and 24 obvious.

With respect to claims 20 and 25, the Office Action at pages 3-6 asserts that the Kihira patent discloses the use of an intermediate brightness area as a target area. In the present invention, as illustrated in Fig. 15 for example, for one photographic image, a portion (C1) of high brightness (K1) corresponding to a light portion is extracted, a portion (C2) of low brightness (K2) corresponding to the dark portion is extracted, and a portion (C3) of an intermediate brightness (K3) is extracted. Thus, the photographic image is converted into three values.

The Office Action cites to column 4, lines 52-68 and Fig. 3A of the Kihira patent to teach such a feature. However, the cited passage of the Kihira patent merely discloses that when the focal length of a camera is changed, it is difficult for a brightness difference between a light portion and a dark portion to appear. Thus, as shown in Fig. 3D of the Kihira patent, the entire image will be observed with a brightness level intermediate between the brightness of the light portion and the brightness of the dark portion. This brightness is described as “intermediate brightness level” in column 5, lines 3-4 of the Kihira patent. Accordingly, in the Kihira patent, the photographic image is not converted into three values. The “intermediate brightness level” in column 5, lines 3-4 in the Kihira patent is

entirely different in its meaning from what is referred to as "intermediate brightness area" in dependent claims 20 and 25 of the present invention. The Office Action further cites to the description in column 5, lines 7-15 of the Kihira patent. However, this disclosure only shows the setting of the focal length of the camera to the above-described condition shown in Fig. 3A. Furthermore, in the case of the Kihira patent, as shown in Fig. 4C and Fig. 5C, a portion with a defect will appear flag-like, having black (11), white (12), and black (13) areas (dark portion (15), light portion (16), dark portion (17)), such that the flag-like portion is used as a target area.

Therefore, the Kihira patent fails to teach or suggest a surface defect inspecting apparatus where "a brightness of the irradiation area in the normal obtained image is defined as a high brightness whereas a brightness of the non-irradiation area is defined as a low brightness; then an intermediate brightness area which is present within the obtained image and which is an area of intermediate brightness between the high brightness and the low brightness is used as a target area" as defined in dependent claims 20 and 25.

As noted above, claims 21-23, 26, and 28-36 stand rejected under 35 U.S.C. § 103(a) as being obvious over Kihira in view of United States Patent No. 5,963,328 to Yoshida. The Office Action asserts that the disclosure of the Yoshida patent at column 10, lines 57-62 and Figs. 1 and 6 teaches where the inspection target surface is extracted as continuous light areas and the continuous light areas are precluded from a target area. The cited disclosure of the Yoshida patent, however, merely states that the illuminated image may be subjected to a picture processing consisting of an edge extracting process. Further, the light source in the Yoshida patent emits light in the form of a line, *i.e.*, a linear light source (column 1, lines 40-42), as opposed to a mesh-like pattern including meshes of a same shape as defined in the present invention.

With respect to independent claim 29, the combination of Kihira and Yoshida fails to teach or suggest a predetermined layout pattern having a continuous arrangement of light emitting elements thereby leaving a dark face of a predetermined shaped therewithin. The light pattern of Kihira, as noted above, is not a continuous arrangement of light emitting elements, but rather is a checkered pattern of alternating light transmitting portions and shading portions. Further, because Kihira fails to disclose a continuous arrangement of light

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emitting elements, Kihira also fails to disclose a dark face of a predetermined shape therewithin. The linear light source of Yoshida fails to overcome these deficiencies. Accordingly, the combination of Kihira and Yoshida fails to render claim 29 obvious.

Claims 20-23, 25-28, and 30-36 depend from, and add further limitations to, independent claims 19, 24, and 29, respectively, and are believed to be patentable for the reasons discussed hereinabove in connection with independent claims 19, 24, and 29.

Conclusion

In view of the foregoing amendment and comments, Applicants respectfully request reconsideration of the rejections of claims 19-36 and allowance of the same.

Should the Examiner have any questions regarding this information or wish to discuss this matter in further detail to advance prosecution, the Examiner is invited to contact Applicants' undersigned representative by telephone at the number provided below.

Respectfully submitted,

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